DP-302561
(DEP-0128)

REMARKS

Claims 1, 4 – 16, 19 – 22, and 24 – 31 are pending in the present application. Claims 1, 4 – 16, 19 – 22, 24, 30, and 31 have been rejected, while Claims 25 – 29 have been allowed and Claim 15 is noted as allowable if re-written to overcome the 35 U.S.C. §112 rejection. Claims 1, 24 and 31 have been amended and Claims 21, 22, and 30 have been cancelled without prejudice, leaving Claims 1, 4-16, 19, 20, 24-29 and 31 for consideration upon entering the present amendment. Support for the amendment to Claim 1 can be found on page 9, lines 21-22. No new matter has been added by these amendments.

Claims 2 – 4, 15, 17 – 18, 20 – 21, and 30 have been rejected under 35 U.S.C. §112, second paragraph, as allegedly indefinite. The Examiner has objected to the phrases "at least about", "less than about", and "not more than about". First, Claims 2 and 3 have been cancelled and the rejection thereof is therefore moot.

Since removal of the term "about" is stated as sufficient to overcome this rejection (see Paper 10, page 2), the basic concern is that the term "about" is allegedly indefinite. The PTO's basis for the indefiniteness rejections based on the term "about" seems to be founded in *Amgen, Inc. vs. Chugai Pharmaceutical Co.*, 927 F2d 1200, 18,USPQ2d 1016 (Fed. Cir. 1991))" (hereinafter *Amgen*). However, the facts and issues present in *Amgen* are not applicable to the instant application.

Amgen involved an appeal of a district court decision in which claims of a U.S. Patent were held invalid as being indefinite for inclusion of the limitation "at least about 160,000" in relation to an "activity" determined by a bioassay relied upon in the claim.
According to the Court:

> The District Court found that "bioassays provide an imprecise form of measurement with a range of error" and that use of the term "about" 160,000 IU/AU, coupled with the range of error already inherent in the specific activity limitation, served neither to distinguish the invention over the close prior art... nor to permit one to know what specific activity values... if any, might constitute infringement.

(*Id* at 1219)

Further, the Court noted that the statute requires:

> [t]he specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

and that:

> [a] decision as to whether a claim is invalid under this provision requires a determination whether those skilled in the art would understand what is claimed. *See Shatterproof Glass Corp. v. Libbey-Owens Ford Co.*, 758 F.2d 613, 624, 625, 225 USPQ 634 641 (Fed. Cir. 1985) (Claims must "reasonably apprise those skilled in the art" as to their scope and be "as precise as the subject matter permits.").

In affirming the District Court ruling, the Court agreed that because the term "about" in this instance "gives no hint as to which mean value... constitutes infringement", the term "at least about" renders the claims to be invalid for indefiniteness. However, in arriving at this conclusion the Court also cautioned:

> our holding that the term "about" renders indefinite claims 4 and 6 should not be understood as ruling out any and all uses of this term in patent claims. It may be acceptable in appropriate fact situations, *e.g., W.L. Gore & Assocs., Inc. v. Garlock, Inc.*, 721 F.2d 1540, 1557, 220 USPQ 303, 316 (Fed Cir. 1983) ("use of 'stretching... at a rate exceeding about 10% per second' in the claims is not indefinite"), even though it is not here.

As stated above, the facts of *Amgen* are not applicable to the instant rejection of Claims 4, 15, 17, 18, 20, 21, and 30. In *Amgen* the uncertainty in defining the limitation at issue is borne of the error inherent in the test itself. In the present situation, however, the limitation recited in the claims, e.g., "at least about 70 weight percent", "not more than about 25 wt%", and "less than about 6 wt%" are directed to the measurement of weight. The recited measurements are specific and clearly understood. Unlike the bioassay at issue in *Amgen*, the measurement of weight, does not carry the same or a similar level of uncertainty as to the result. Similar to a measurement of time, the measurement at issue is definite. In *W.L. Gore & Assocs., Inc. v. Garlock, Inc.* it a was noted that the term "exceeding about 10% per second could clearly be assessed through the use of a stopwatch."(emphasis added) and the mere inclusion of "about" does not render a claim invalid.

Claims 4, 15, 17 – 18, 20 – 21, and 30 are definite as the measurement at issue is definite. Furthermore, the use of the term "about" with terms such as "at least" and "not more than" is similarly definite, and understood by the Examiner. The Examiner states that "less than" excludes values greater than or equal to the claimed value and "about" would appear to include such values. (Paper 10, page 2) Applicants agree. The term "less than" would have been used if the exclusion of the endpoint was desired, while "less than about" is used where inclusion of the endpoint is desired. The claims of the present application are clear and definite. Reconsideration and withdrawal of this rejection is requested.

Claims 1, 3, 5 – 14, 16, 23, and 30 – 31 have been rejected under 35 U.S.C. §102(b) as allegedly anticipated by U.S. Patent No. 5,051,392 to Mabilon et al. Applicants traverse this rejection.

The heart of the Examiner's rejections is based upon the position that "at least about 50 wt%" includes a range of "0.1 to about 35 wt%". In response to the Applicants' previous arguments, the Examiner has asserted "It is not considered unreasonable for one skilled in the art to interpret the claimed range of "at least about 50%" as incorporating at least some of the values encompassed by the prior art range of '0.1 to about 35%'" (Paper 10, page 6). Applicants disagree on the basis that the subject of the present claims and the cited art is catalysts. It is well recognized that the art of catalysis is highly unpredictable, and that even small changes in composition can have unexpected effects. "The unpredictability of catalytic phenomena has been recognized... [A] successfully catalyzed process depends not only on the particular catalyst that may be employed but also on the environment within which the catalysis is accomplished..." *In re Mercier*, 515 F.2d 1161, 185 U.S.P.Q. 774, 779-80 (C.C.P.A. 1975).

Because of the inherent unpredictability associated with catalysts, one of ordinary skill in the catalytic art know that relative terms such as "about" are not reasonably accorded a scope that would result in overlap of the values encompassed by "0.1 to about 35%" and "at least about 50%". This is particularly so where the reference discloses a range that ends at 35% - it is clear that in disclosing a range of "0.1 to about 35%", the reference considers that the 35% is a maximum, and that the values should be less than that maximum. The present claims, on the other hand, are directed to a minimum of about 50%. One of ordinary skill in the art would not, and would have no reason to, stretch the minimum of about 50% so far as to encompass less than about 35%.

The Examiner has stated no basis for the assertion that "[I]t is not considered unreasonable" for one skilled in the art to consider the subject ranges to be overlapping. In Applicants' opinion, it would in fact be unreasonable, particularly based on the nature of the catalytic art. In the absence of any support for the Examiner's assertion, Applicants, respectfully request reconsideration and withdrawal of the rejection over Mabilon et al.

Claims 1 – 4 and 16 – 24 have been rejected under 35 U.S.C. §102(b) as allegedly anticipated by U.S. Patent No. 4,988,660 to Campbell. Applicant respectfully traverses this rejection. Again, Claims 2 and 3 have been cancelled, rendering the rejections thereof moot.

The Examiner contends that "'at least about 2%' includes values close or equal to zero" (Paper 10, page 7) and is including about 0.1 to 60 wt% within "at least about 70 wt%". For at least the reasons noted above, particularly in the catalyst arts, it is not obvious to one of skill in the art to expand the specified ranges as suggested by the Examiner.

Furthermore, as was stated in Amendment D filed with the RCE, Campbell discloses alkali metal doped perovskites useful in the oxidative coupling of alkanes to higher hydrocarbons (Abstract). Perovskites are very specific compounds. Campbell does not teach or suggest that these compounds are NO_X occluding catalysts. If the Examiner is taking Official Notice that a perovskite is a NOx occluding catalyst, Applicants respectfully traverse this assertion and, pursuant to MPEP 2144.03, request evidence to support the Examiner's position. Applicants have reviewed Campbell and do not see any evidence therein to support the Examiner's position, and are officially requesting that this rejection be withdrawn or proof to support this Official Notice be provided.

Furthermore, Claim 1 of the present application claims a NOx occluding catalyst structure comprising an alkaline earth exchanged zeolite, and Claim 16 claims a NOx occluding catalyst structure comprising an alkaline earth exchanged zeolite and an alkaline earth alumina. Campbell does not teach or suggest a "structure comprising an alkaline earth exchanged zeolite" or a "structure comprising an alkaline earth exchanged zeolite and an alkaline earth alumina". Campbell also fails to teach or suggest such a structure having an "outer layer comprising at least about 50 wt% of an alkaline earth oxide component, not more than about 42 wt% of a rare earth oxide component".

To anticipate a claim, a reference must disclose each and every element of the claim. *Lewmar Marine*, 3 U.S.P.Q.2d 1766. At least because Campbell fails to teach: (i) that a

perovskite is/can be used as a NOx occluding catalyst; (ii) a structure comprising an alkaline earth exchanged zeolite; (iii) a structure comprising an alkaline earth exchanged zeolite and an alkaline earth alumina; (iv) an *outer layer* on the structure comprising at least about 50 wt% of an alkaline earth oxide component, not more than about 42 wt% of a rare earth oxide component; and/or (v) "an alkaline earth component in an amount of at least about 70 weight percent", Campbell fails to teach all of the elements of Claims 1, 4 and 16 – 24 of the present application. Consequently, Campbell does not anticipate any of Claims 1, 4, or 16 - 24. Additionally, for at least the above failures of Campbell, Campbell similarly fails to render any of the claims of the present application obvious. Reconsideration and withdrawal of this rejection is requested.

Claims 21 – 24, 30, and 31 have been rejected under 35 U.S.C. §102(b) as allegedly anticipated by U.S. Patent No. 5,545,604 to Demmel. Applicants respectfully traverse. Claims 21, 22, and 30 have been cancelled; Claim 23 was previously cancelled. Claim 31 depends from Claim 1, which is not rejected under Demmel.

Claim 24 of the present application is directed to a NO_x occluding catalyst structure comprising an alkaline earth exchanged zeolite and an alkaline earth alumina and having an outer layer comprising an alkaline earth oxide component, a rare earth oxide component, a surface area stabilizer, and a ceramic oxide binder.

The Examiner contends that Demmel discloses a catalyst comprising 50 – 95% calcium oxide in the final product, alumina as a binder, and 40% alumina, wherein alumina also serves as support of the other materials. (Paper 10, page 5) Demmel, however, does not teach a structure comprising "an alkaline earth exchanged zeolite and an alkaline earth alumina", or an outer layer comprising "an alkaline earth oxide component, a rare earth oxide component, a surface area stabilizer, and a ceramic oxide binder" disposed on that structure.

To anticipate a claim, a reference must disclose each and every element of the claim. *Lewmar Marine,* 3 U.S.P.Q.2d 1766. Considering that Demmell fails to teach a structure comprising "an alkaline earth exchanged zeolite and an alkaline earth alumina", or an outer layer comprising "an alkaline earth oxide component, a rare earth oxide component, a surface area stabilizer, and a ceramic oxide binder" disposed on that structure, Demmel fails to anticipate or render obvious the present claims. Reconsideration and withdrawal of this rejection is requested.

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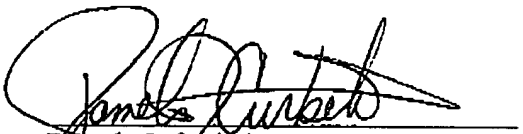
It is believed that the foregoing amendments and remarks fully comply with the Office Action and that the claims herein are allowable to Applicants. Accordingly, reconsideration and withdrawal of the rejections, and allowance of the case is requested.

If there are any additional charges with respect to this Amendment or otherwise, please charge them to Deposit Account No. 50-0831 maintained by Assignee.

Respectfully submitted,

LABARGE ET AL.

CANTOR COLBURN LLP
Applicants' Attorneys

By: 
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VERSION WITH MARKINGS TO SHOW CHANGES MADE

A marked-up version of Claims 1, 24, and 31 follows:

1. (Twice Amended/Marked-up) A catalyst for treating an exhaust gas stream comprising:

a NOx occluding catalyst structure comprising an alkaline earth exchanged zeolite and having an outer layer comprising at least about 50 weight percent of an alkaline earth component, and not more than about 42 weight percent of a rare earth component.

24. (Amended/Marked-up) A catalyst for treating an exhaust gas stream comprising:

a NO_x occluding catalyst structure comprising ~~a material selected from the group consisting of~~ an alkaline earth exchanged zeolite~~,~~ and an alkaline earth alumina~~,~~ and ~~mixtures thereof,~~ having an outer layer comprising an alkaline earth oxide component, a rare earth oxide component, a surface area stabilizer, and a ceramic oxide binder.

31. (Amended/Marked-up) The catalyst of Claim ~~21~~1, wherein said stabilizer is selected from the group consisting of oxides of silicon, titanium, zirconium, and mixtures thereof.